

CORDLESS, BATTERY- OPERATED FLOOR EDGER, SCRUBBER, AND BUFFER

FIELD OF INVENTION

[0001] THIS INVENTION RELATES TO CORDLESS, BATTERY OPERATED CLEANING MECHANISMS AND MORE PARTICULARLY TO THE STRIPPING, SCRUBBING, AND BUFFING OF EDGES AND HARD TO REACH AREAS ON VARIOUS TYPES OF FLOORS USING 18 AND 24-VOLT REVERSIBLE MOTOR, DESIGNED TO ACCOMMODATE BOTH LEFT AND RIGHT HANDED USERS, WITH ADJUSTABLE SPLASH GUARD, AND A POLARITY REVERSE SWITCH. CHANGEABLE HEADS AND HINGE MOTOR HOUSING UNIT, WHICH ALLOWS FOR CLEANING OF HARD TO REACH AREAS, SUCH AS UNDER STATIONARY TABLES, BENCHES, AND CHAIRS. ALSO, INCORPORATED IS A VARIABLE SPEED SWITCH WHICH ALLOWS SLOWER SPEEDS WHICH ARE NEEDED TO STRIP AND SCRUB AND HIGHER SPEEDS WHICH ARE NEEDED FOR BUFFING.

CROSS- REFERENCE TO RELATED APPLICATIONS

[0002] NOT APPLICABLE

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0003] NOT APPLICABLE

REFERENCE TO SEQUENCE LISTING, A TABLE, OR A COMPUTER PROGRAM LISTING COMPACT DISC APPENDIX

NOT APPLICABLE

BACKGROUND OF INVENTION

[0004] CURRENTLY IN THE FIELD OF STRIPPING AND SCRUBBING OF FLOORS, THERE ARE NO CORDLESS, BATTERY-OPERATED MECHANISMS. CURRENT METHODS FOR REMOVING WAX BUILD-UP IN HARD TO REACH AREAS AND EDGES AROUND FLOOR DISPLAYS ARE MANUAL, WITH A HAND HELD RAZOR BLADE SCRAPER, OR SCRUB PAD APPLIED TO A DOODLE-BUG. WHILE THERE ARE A NUMBER OF BATTERY-OPERATED CLEANING TOOLS, NONE WOULD BE SUFFICIENT TO PERFORM THE SPECIFIC TASK OF THIS FIELD OF ENDEAVOR.

[0005] IN THE FIELD OF DC POWERED CLEANING TOOLS, THERE ARE MANY THAT USE DETACHABLE ROTARY DISCS AS WELL AS CHANGEABLE PAD, HOWEVER, NONE USE AN ADJUSTABLE SPLASH GUARD, OR A REVERSIBLE MOTOR WHICH IS NEEDED FOR VARIOUS USERS. PATENT 5,289,605 ARMBRUSTER, USES A TELESCOPING POLE AND A HINGE, HOWEVER, THESE AREN'T APPLICABLE FOR USE ON FLOORS WHERE PRESSURE MUST BE EXERTED NOT VERTICALLY, BUT HORIZONTALLY. ALSO, THE PATENT MENTIONED ABOVE USES 12 VOLTS. THIS TOO IS NOT ADEQUATE TO ACCOMMODATE THE SPEEDS NEEDED TO BUFF VARIOUS FLOORS. PRIOR ART DOES NOT DISCLOSE AN 18 AND 24 VOLT DC POWERED STRIPPER, SCRUBBER, AND BUFFER COMBINATION THAT USES AN ADJUSTABLE SPLASH GUARD, A FIXED LENGTH POLE, WITH VARIABLE SPEED AND REVERSIBLE MOTOR, DESIGNED EXCLUSIVELY FOR FLOOR EDGING APPLICATIONS.

SUMMARY OF INVENTION

[0006] WITH ONLY MANUAL, AS WELL AS CORDED MACHINES, AVAILABLE TO SATISFACTORILY REMOVE WAX AND DIRT BUILD UP FROM EDGES OF VARIOUS TYPES OF FLOORING, THE EMBODIMENT OF A CORDLESS EDGER WOULD DECREASE NOT ONLY THE TIME NEEDED TO STRIP AND SCRUB EDGES OF FLOORS, BUT WOULD GREATLY REDUCE THE AMOUNT OF MANUAL LABOR NEEDED. THERE IS GREAT ADVANTAGE IN NOT HAVING A CORD AND IN HAVING A SUITABLE SPLASH GUARD TO PREVENT THE DAMAGE OF GOODS ON SHELVES CLOSE TO THE FLOOR. ALSO, THE ADJUSTABLE HINGE ALLOWS THE HEAD OF THE UNIT TO STAY IN A FIXED POSITION AS NEEDED; ANGLED, VERTICAL, OR HORIZONTAL.

[0007] IT IS THE OBJECT OF THIS INVENTION TO PROVIDE A UNIQUE CLEANING TOOL WHICH IS CORDLESS, VERSATILE, AND EASY TO USE AND MAINTAIN.

[0008] IT IS ANOTHER OBJECT OF THIS INVENTION TO PROVIDE THE FLOOR CLEANING INDUSTRY WITH A NEW POWER TOOL FOR STRIPPING,SCRUBBING, AND BUFFING EDGES OF FLOORS.

[0009] IT IS STILL ANOTHER OBJECT OF THIS INVENTION TO PROVIDE AN EDGING TOOL THAT ACCOMMODATES BOTH LEFT AND RIGHT HANDED USERS.

[0010] IT IS YET ANOTHER OBJECT OF THIS INVENTION TO PROVIDE A TOOL WITH A RECHARGEABLE, LONG-LIFE, BATTERY.

[0011] IT IS STILL ANOTHER OBJECT OF THIS INVENTION TO PROVIDE A FLOOR CLEANING POWER TOOL THAT CAN REACH UNDER STATIONARY OBJECTS, SUCH AS TABLES, AND BENCHES.

[0012] IT IS STILL ANOTHER OBJECT OF THIS INVENTION TO PROVIDE A FLOOR CLEANING POWER TOOL WITH INTERCHANGEABLE HEADS, USING BOTH PADS AND BRUSHES.

[0013] IT IS YET ANOTHER OBJECT OF THIS INVENTION TO PROVIDE A FLOOR CLEANING POWER TOOL WITH AN ADJUSTABLE MID-POLE HANDLE, TO ACCOMMODATE VARIOUS USERS.

[0014] IT IS STILL ANOTHER OBJECT OF THIS INVENTION TO PROVIDE A FLOOR CLEANING POWER TOOL WITH A VARIABLE SPEED AND REVERSIBLE DC MOTOR.

[0015] IT IS YET ANOTHER OBJECT OF THIS INVENTION TO PROVIDE A FLOOR CLEANING POWER TOOL, EQUIPPED WITH AN ADJUSTABLE/REMOVABLE SPLASH GUARD.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] FIG. 1 SIDE VIEW OF THE EMBODIMENT OF A CORDLESS BATTERY OPERATED FLOOR EDGER, SCRUBBER, AND BUFFER OF THE PRESENT INVENTION.

[0017] FIG. 2 SIDE SECTIONAL VIEW OF HOW AND WHERE THE BATTERY RETAINING BRACKET IS ATTACHED TO THE END OF THE POLE.

[0018] FIG. 3 SIDE VIEW OF THE MID-POLE HANDLE BRACKET ATTACHED TO THE POLE.

[0019] FIG. 4A OVERHEAD VIEW OF THE SPLASH GUARD.

[0020] FIG. 4B SIDE VIEW OF THE SPLASH GUARD.

[0021] FIG. 5A FRONT VIEW OF THE MALE SIDE OF THE HINGE.

[0022] FIG. 5B SIDE VIEW OF THE MALE SIDE OF THE HINGE.

[0023] FIG. 6 SIDE VIEW OF ONE PIECE OF THE FEMALE SIDE OF THE HINGE.

[0024] FIG. 7A OVERHEAD VIEW OF THE SPLASH GUARD STABILIZING AND RETAINING PLATE.

[0025] FIG. 7B SIDE VIEW OF THE SPLASH STABILIZING AND RETAINING PLATE.

- [0026] FIG. 7C SIDE VIEW OF THE ANGLE BRACKET THAT HOLDS THE SPLASH GUARD STABILIZING AND RETAINING PLATE TO THE MOTOR HOUSING.
- [0027] FIG. 8 SECTIONAL VIEW OF THE MOTOR HOUSING WITH MOTOR MOUNTED AND FIG. 7C AS WELL AS FIG. 5B ATTACHED.
- [0028] FIG. 9 SECTIONAL VIEW OF THE REAR POLE HANDLE WITH VARIABLE SPEED SWITCH AND POLARITY REVERSE SWITCH.
- [0029] FIG. 10 FRONT VIEW OF THE MID-POLE HANDLE BRACKET. SAME AS FIG. 3 BUT A DIFFERENT VIEW.
- [0030] FIG. 11 QUICK CONNECT PIECE TO BE ATTACHED TO BRUSH AS WELL AS DISC FOR FLOOR PADS.
- [0031] FIG. 12 MID POLE HANDLE.

DETAILED DESCRIPTION OF THE INVENTION

- [0032] WITH REFERENCE TO FIG. 1 THE DEVICE ACCORDING TO THE PRESENT INVENTION USES A FIXED LENGTH POLE 8. PREPARE THE POLE BY NOTCHING OUT HOLES BOTH TOP AND BOTTOM TO SUPPORT POLARITY REVERSE SWITCH 42 AND VARIABLE SPEED SWITCH 45, ALSO DRILL COUNTER SINK HOLES 43 & 44 IN PROPER POSITION ON THE POLE. DRILL COUNTER SINK HOLES 9 TO SUPPORT BATTERY RETAINING AND SUPPORTING BRACKET 10. AT THE BOTTOM OF THE POLE DRILL COUNTER SINK HOLES 28, BOTH LEFT AND RIGHT SIDE, TO SUPPORT 2 PIECES OF THE FEMALE SIDE OF THE HINGE 26. CONNECT WIRES TO POLARITY REVERSE SWITCH 42. THEN RUN THEM TO THE BOTTOM OF POLE 8, TO THE TOP OF POLE 8, AND TO THE NOTCHED OUT HOLE FOR THE VARIABLE SPEED SWITCH 45.

[0033] SLIDE POLARITY REVERSE SWITCH **42** INTO PLACE AND SCREW DOWN THROUGH COUNTER SINK HOLES **43**, THEN ATTACH WIRES TO THE VARIABLE SPEED SWITCH **45**, SLIDE INTO PLACE , AND SCREW DOWN THROUGH COUNTER SINK HOLES **44**. STARTING FROM TOP OF THE POLE **8**, SLIDE POLE GRIP HANDLE **2** DOWN THE POLE AND INTO PLACE. CONNECT WIRES AT THE TOP OF THE POLE **8** TO THE BATTERY RETAINING AND SUPPORTING BRACKET **10**. SLIDE THE BATTERY RETAINING AND SUPPORTING BRACKET **10** INTO PLACE AND ATTACH THRU COUNTER SINK HOLES **9**.

[0034] AT THE BOTTOM OF THE POLE **8** DRILL A HOLE ON THE TOP SIDE , PULL WIRES THROUGH HOLE. SLIDE A RUBBER DONUT INSULATOR DOWN THE WIRES AND INTO THE HOLE TO AVOID WIRE RUBBING ON THE POLE **8** . ATTACH A TWO SIDED PLUG-IN TYPE CONNECTOR TO THE END OF THE WIRE. LEAVING ENOUGH WIRE TO ALLOW FOR THE POLE **8** TO MOVE UP AND DOWN ON THE HINGE **FIG.4**. AT THE BOTTOM OF THE POLE **8** INSERT ONE PIECE OF THE FEMALE SIDE OF THE HINGE **26**. SCREW INTO PLACE THROUGH COUNTER SINK HOLES **28**. THEN PUT SECOND PIECE OF THE FEMALE SIDE OF HINGE **26** INTO POLE **8** . SCREW INTO PLACE THROUGH COUNTER SINK HOLES **28**. THIS FORMS THE COMPLETE FEMALE SIDE OF THE HINGE **26**.

[0035] TAKE BOTTOM PIECE OF THE MID POLE HANDLE BRACKET **49** AND THE MIDDLE PIECE OF THE MID POLE HANDLE BRACKET **48** AND ATTACH IT TO THE MIDDLE SECTION OF THE POLE **8**. SCREW DOWN THROUGH COUNTER SINK HOLES **50**. TAKE THE MID POLE HANDLE **51** AND INSERT IT INTO PLACE ON THE TOP OF THE MIDDLE PIECE OF THE MID POLE HANDLE BRACKET **48**, THEN PUT THE TOP PIECE OF THE MID POLE HANDLE BRACKET **47** INTO PLACE AND SCREW DOWN THROUGH COUNTER SINK HOLES **46**.

[0036] TO ASSEMBLE MOTOR HOUSING **5** USE STOCK MATERIAL. CUT FOUR EVEN SIDES THEN GROOVE INSIDE BOTTOM OF EACH SIDE TO HOLD MOTOR STABILIZING AND RETAINING PLATE **39**. CUT FROM STOCK MATERIAL A TOP PIECE AND A BOTTOM PIECE TO FIT MOTOR HOUSING UNIT **5**. DRILL CENTER HOLE IN BOTTOM PIECE AND CUT IN TWO. TAKE THREE SIDES OF MOTOR HOUSING UNIT **5** AND SPOT WELD IN THE CONNECTING CORNERS.

[0037] THEN SPOT WELD TOP PIECE TO THE THREE SIDES OF THE MOTOR HOUSING UNIT **5**. TAKE ONE HALF OF THE BOTTOM PLATE AND SPOT WELD IT TO THE BOTTOM OF THE CONNECTED THREE SIDES OF THE MOTOR HOUSING UNIT **5**, LEAVING ONE OPEN SIDE OF THE MOTOR HOUSING UNIT **5**.

[0038] OBTAIN STOCK MATERIAL FOR MOTOR STABILIZING AND RETAINING MOUNT PLATE **39**. DRILL CENTER HOLE AND MOTOR MOUNT SCREW HOLES. THEN MOUNT COMPLETE MOTOR **37**, GEAR BOX **38**, AND ADJUSTABLE CLUTCH **40** TO MOTOR STABILIZING AND RETAINING PLATE **39**. CONNECT NEEDED WIRES TO THE MOTOR **37**. DRILL A HOLE IN THE TOP OF THE MOTOR HOUSING UNIT **5**, AND INSERT A RUBBER DONUT INSULATOR INTO THE HOLE. PUSH WIRES CONNECTED TO MOTOR **37** THROUGH HOLE IN THE TOP OF THE MOTOR HOUSING UNIT **5**,

[0039] THEN SLIDE MOTOR STABILIZING AND RETAINING PLATE **39** INTO THE GROVE OF THE THREE SIDED MOTOR HOUSING UNIT **5**. DRILL AND TAP HOLES TO ATTACH THE REMAINING SIDE OF THE MOTOR HOUSING UNIT **5**, AND THE SECOND HALF OF THE BOTTOM OF THE MOTOR HOUSING UNIT **5**. TAKE THE SECOND SIDE OF THE TWO- SIDED PLUG- IN CONNECTOR THAT FITS THE WIRES COMING OUT THE BOTTOM OF THE POLE **8**. CONNECT PLUG TO THE WIRES FROM THE MOTOR **37**.

[0040] CONNECT THE MALE SIDE **23** OF THE ADJUSTABLE HINGE **FIG. 4** TO THE MOTOR HOUSING UNIT **5**, AS SEEN IN **FIG. 8**. SLIDE FEMALE SIDE **26** OF THE ADJUSTABLE HINGE **FIG. 4** AT THE BOTTOM OF THE POLE **8** INTO THE MALE SIDE **23** OF THE ADJUSTABLE HINGE **FIG. 4** AND INSERT BOLT INTO HOLE **24**. USE WING NUT ON BOLT TO ALLOW QUICK ADJUSTMENT.

[0041] ATTACH ANGLE BRACING BRACKETS **34** TO ALL FOUR SIDES OF THE MOTOR HOUSING UNIT **5**. FROM STOCK MATERIAL, CUT SPLASH GUARD BRACING DISC **31**, SQUARE OUT THE CENTER **29** AND DRILL ALL HOLES **30**, AND **32**. SLIDE SPLASH GUARD BRACING DISC **31** OVER THE MOTOR HOUSING UNIT **5**. ATTACH TO THE ANGLE BRACING BRACKETS **34**. ATTACH SPLASH GUARD **16** TO SPLASH GUARD BRACING DISC **31**. TAKE QUICK CONNECT PIECE FIG. **11** AND ATTACH IT TO PURCHASED STRIPPING BRUSH WITH A LOCK NUT. INSERT INTO HOLLOW MOTOR SHAFT **41**.

[0042] TO STRIP FLOOR, PICK UP MACHINE, ADJUST TO FIT, AND PLACE THE BRUSH ON THE FLOOR. PULL VARIABLE SPEED TRIGGER **6** TO ACHIEVE DESIRED SPEED. EXERT MINIMUM PRESSURE DOWNWARD AND WALK ALONG THE EDGES OF THE FLOOR TO REMOVE OLD WAX BUILD UP.

[0043] TO SCRUB FLOOR, REMOVE BRUSH FROM MACHINE USEING A DISC AND A PURCHASED SCRUB PAD WITH QUICK CONNECT PIECE FIG. **11**(ATTACHED THE SAME AS THE BRUSH WITH LOCK NUT). INSERT INTO HOLLOW MOTOR SHAFT **41** AND FOLLOW THE SAME PROCEDURE AS WHEN STRIPPING.

[0044] TO BUFF FLOOR, REMOVE SCRUB PAD FROM BOTTOM OF DISC AND APPLY A BUFF PAD. THEN FOLLOW THE SAME PROCEDURE AS SCRUBBING, ONLY USE MAXIMUM SPEED PROVIDED THROUGH THE VARIABLE SPEED SWITCH **6**.